

ABSTRACT OF THE DISCLOSURE

Electrical power distribution circuits for motor vehicles incorporate a switching element for controlling the energization of the circuits. Current metering elements associated with each switching element indicate the current drawn by the respective electrical circuits. A microcontroller is provided which provides an activation signal for the switching elements, often in accord with a pulse width modulated duty cycle. The microcontroller implements a circuit protective algorithm which takes as inputs the indication of current drawn by a particular electrical circuit and the duty cycle. An equivalent D.C. current is estimated for determining a heat index for a hypothetical fuse suitable for protecting the circuit. When the heat index exceeds the rating for the fuse the fuse melts.